

Alpacas

Chris Tuckwell

Introduction

Alpacas are one of four species of South American Camelids. Other members of the species are guanaco, llama and vicuña. All South American Camelids are closely related and related to other camel species, Bactrian (two-humped camel) and the dromedary (single-humped camel).

Alpacas and llamas were farmed by South American Incas for centuries before the Spanish invasion. They used sophisticated breeding and management programs to produce high-quality fibre for clothing and textiles. The destruction of the Inca empire brought the industry to an end. Their farming techniques had been passed on to successive generations through mnemonics, so the slaughter of the Incas meant that much of the knowledge was lost.

After the Spanish conquest, alpacas and llamas only survived in areas unsuited to the Spanish sheep and cattle, principally the Andean high plain or Altiplano. The world's alpaca industry scarcely existed until the 1860s. Its resurgence then lasted until Peru's political turmoil of the

1960s. A secondary resurgence began in the mid 1980s and continues today.

Australia's modern alpaca industry began in the late 1980s with the import of animals from Chile. Recent imports from Peru will add to the genetic base available in Australia.

Markets and marketing issues

The alpaca industry will remain speculative and based on the sale of breeding stock for the foreseeable future. Its future as a fibre-producing industry will be determined by the research now under way into its commercial production traits.

The most important factors that influence and determine the longevity of the alpaca industry include: (i) controlled, cooperative planning of industry development; (ii) market development; (iii) marketing program development; (iv) product development; and (v) processing technology development.

Without a sound knowledge of the size of the potential market for alpaca products it is difficult to predict prices, since the amount of product offered for sale is likely to change markedly. As a result, predictions about likely industry growth become more theoretical and are based simply on production potential.

Breeding stock currently sell for \$10,000 - \$30,000 per head. Australia has the potential to be the stud capital of the world. Currently steps are being taken to enable breeders to sell stock into the U.K., Europe, Canada and New Zealand.

The total production of Australian alpaca fibre in 1992 was 6,000 kg and in 1993 was estimated to be 10,000 kg. While the current contribution of the industry to the Australian economy is relatively small, it could become much more valuable.

Production requirements

Although many think that alpacas and llamas need high altitudes and harsh conditions, it is far from true. Various histories (fossil, Spanish) show that the animals evolved and were managed by the Incas on good pastures at low altitudes. Their survival in the high Andes since the mid-1500s is a matter of necessity rather than evolution.



Suri type alpaca.

The ideal production environments for alpacas appear to be similar to those for wool sheep. However, it is generally accepted that they need more dietary fibre than sheep. They can use dietary fibre more efficiently than sheep, so in areas of coarse fibrous feed alpacas appear to have the advantage.

Both alpacas and llamas are very adaptable and can withstand very harsh conditions. However, they do not tolerate high humidity well.

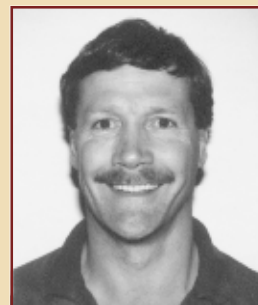
Breeds

Although alpacas and llamas are the species domesticated by the Incas and traditionally used for commercial production, researchers in Europe and South America are currently investigating the commercial possibilities of guanacos and vicuñas.

Alpacas are smaller than llamas and have been selected for fine-fibre production for at least 3,000 years. There are two distinct types: the suri alpaca and the

huacaya. Suri alpacas are smaller animals that produce fine, lustrous fibre which crimps less and is soft handling. The fleece looks similar to that of Lincoln sheep and the fibre itself is similar to long mohair.

About the author



In 1978 Chris Tuckwell RDA RDAT graduated from the University of Adelaide's Roseworthy campus. Until 1996 he worked for the South Australian Department of Primary Industries (PIA). From 1990 he led New Animal Industries group. He now works for Rural Industry Developments Pty. Ltd. whose activities include: assistance with industry and enterprise development; the provision of technical and marketing advice; and research and extension programs. See Key contacts for address.

Huacaya alpacas comprise more than 90% of the total alpaca population. They produce a short, crimped fibre that is similar in appearance to that of Corriedale or merino sheep. Huacaya animals are generally bigger than suris and hardier.

Animal husbandry

Alpaca management is very similar to that of sheep. The best results for commercial fibre production come when alpacas have good-quality grazing and continual access to hay or other sources of fibre.

Unlike sheep, alpacas tend to urinate and dung at midden sites throughout a paddock rather randomly across the paddock. This means that contamination of pastures with internal parasite larvae is reduced and, with appropriate management, anthelmintic (drenching) requirements are much less than for sheep.

Male alpaca are usually at least two and often three years old before they can successfully inseminate a female. Female maturity is a function of age and body weight, but ideally females should be first bred at twelve months of age. Gestation in Peru ranges from 1.5 to 12.5 months so unless females are carefully managed, a long-term, average, annual reproductive rate for a population of female alpacas is unlikely to be greater than 70 to 75%. Improved nutrition in

Australia has decreased gestation for some animals to 10.5 to 11.5 months.

Offspring are called cria. They are usually born before mid-afternoon on any day and rarely at night. They are weaned ideally at three months and not later than six months of age. The alpaca's reproductive physiology is different from other species and twins are very rare.

Aggressive or scared animals can react by biting and spitting. Although this is occasionally

directed at handlers, it is more often directed at other alpacas.

The animals are shorn annually for their fleece. The timing of shearing should relate to other considerations such as the risks from grass-seed invasion. The animals are susceptible to sunburn if they are shorn during summer and insufficient fleece is left on. Alpacas have a soft, padded foot, similar to those of camels, which are likely to cause less damage to the soil structure, and subsequently the environment, than do sheep and cattle.



Huacaya type alpacas.

Keystatistics

E An estimated 1500 animals were imported during 1996-97

E Approximately 1000 animals were exported in 1996 and 300 to 400 will be exported in 1997

Key messages

The future of a commercial Alpaca fibre based industry in Australia is dependent upon:

- E determination of potential market and processor requirements**
- E development of industry improvement plans which include the use of superior Peruvian genetics for the commercial good of the national industry; and**
- E continued development of fibre marketing plans for the commercial industry**

Pests and diseases

Alpaca-to-alpaca infection by internal parasites is low because of their habit of creating middens (communal dung piles). Internal parasite infection risks increase if the animals are grazed with other species, particularly sheep. A parasite specific to Camelids exists in South America, but to date it has not been confirmed in Australia. The treatment for internal parasites is similar to that for sheep.

External mites, especially in the ears, can be a problem. Treatment usually involves Ivermectin-based products.

Cria are very susceptible to bacterial infection, particularly from Clostridial bacteria. Enterotoxaemia is a major

disease of alpacas, particularly of cria. Routine vaccinations with commonly available 5 in 1 clostridial vaccine is important.

Alpacas also suffer from facial eczema. The best control is to farm the animals in areas not predisposed to the growth of the fungal spores responsible for the disease.

If Camelids are fed insufficient fibre, they suffer diarrhoea (scours). Treatment is simply to ensure there is enough fibre in the diet. Apart from that, alpacas need much the same feed and are susceptible to the same plant poisoning as sheep.

Harvesting, processing and marketing

Alpaca shearing requires two people. Animals are held in the catching pens of a normal shearing shed and are individually caught and brought out to the shearing board. The animal is restrained and rolled to the floor. Its rear and fore legs are connected to restrainers at the rear and head end of the animal respectively. Tension is placed on the restrainers by adjusting the length of the cord attached to the restrainer.

The animal lies flat on the board with its legs extended in front and behind it. The fleece is removed with a normal hand piece (slow cutter speed) while the animal is held on the floor. After removal the fleece is skirted and classed in a similar manner to sheep fleece. It is mostly sorted on the basis of average fibre diameter, colour, length and type (huacaya, suri or hybrid).

In Peru most fibre is processed by large companies and sold on the international market. In Australia the industry's total production is still small and the majority of fibre sold goes to the high-value handicraft market.

The alpaca industry in Australia is still a speculative, breeding-based industry and profits are made from the sale of breeding animals. If alpaca populations increase without consideration of selection based on an objective assessment of commercially important traits, the future of the industry appears less certain. It will principally depend on the organised marketing of fibre at the premium end of the fine-micron fibre market. A fibre-marketing organisation and objective grading are being developed.

Economics of production

The current economics of Alpaca farming are based on returns from sale of breeding stock to other breeders. To judge by average reproductive rates, it is reasonable to assume that the speculative phase of the Australian alpaca industry will persist for the immediate future. Budgets for commercial alpaca production must obviously use broad estimates (guesstimates) since there are as yet no commercial producers.

Average world prices for alpaca fibre range from \$7.00/kg–\$12.00/kg greasy at the farm gate, depending on quality. In the domestic handicraft market, returns average \$60.00 per kg greasy at the farm gate.

Income	Budget1		Budget2	
Fibre	41 kg @ \$6414/kg	\$2598	3059 kg @ \$1782/kg	\$54513
Livestock sales	9 @ \$6778/head	\$61000	337 @ \$338/head	\$130920
Total income		\$63598		\$150135
Expenses				
Shearing	\$357		\$8945	
Veterinary	\$30		\$1294	
Site purchases	\$0		\$13200	
Service fees	\$12000		\$0	
Feed	\$329		\$16558	
Interest on breeding stock capital	\$18000		\$32340	
Insurance	\$10320		\$4936	
Freight	\$450		\$16850	
Other	\$4		\$503	
Total		\$41490		\$94626
Gross margin		\$22108		\$90007

The above sample gross-margin budgets relate to: (1) a flock of 12 breeding females on 2.5 hectares in the current speculative environment and (2) a flock of 400 breeding females on 300 hectares in a future commercial industry. Budget 1 is based on current market price for livestock, handicraft prices for fibre, current fleece production averages and a weaning rate of 75%.

Budget 2 is itself speculative. It assumes livestock prices of 5% of current values, prices for fibre are discounted by approximately 75%, 50% increased average fleece production per animal, a 30% reduction in shearing costs and a weaning rate of 85%. Returns in both budgets show figures that are averaged across all ages and classes of stock.

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